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MARKETING COOPERATIVES AND FINANCIAL STRUCTURE

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and

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Abstract

The relationship between the financial structure of marketing cooperatives and the requirement of the domination of control by the members of the cooperative is analysed with an emphasis on incomplete contracts and system complementarities. It is argued that the disappearance of shortage markets in agricultural and horticultural markets poses a serious threat to the survival of the marketing cooperative as an organizational form. Comparative statics results are presented regarding aspects of financial instruments (e.g. personal liability, financial contributions and bank relationships), organizational form (e.g. democratic decision making and internal control systems) and economic systems.

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MARKETING COOPERATIVES AND FINANCIAL STRUCTURE

1 Introduction

Agricultural and horticultural cooperatives operate nowadays in a rapidly changing environment. The Dutch Cooperative Council (NCR, 1990) distinguishes three developments. Production of a large number of products has reached self-sufficiency at the level of the European Union. Many markets are not characterized by shortages anymore, but by firms having large inventories or idle capacity. The agricultural policy of the EC tries to cope with this situation of overproduction by adopting instruments like quotation, leave fallow, lower prices and less subsidized exports. The implication of these policies for firms is that expensive adjustments have to be made in order to eliminate excess capacity. A second development is that a different product assortment is required in order to be successful in a market which has changed from a sellers market to a buyers market. Strategies like expansion of production and competition on the basis of prices are nowadays less important than product differentiation, market segmentation, specialisation and diversification. Finally, the emergence of the internal market in Europe induced many merger activities which has resulted in a few large, multinational private corporations. These developments are not uniquely dutch or european. Californian cooperatives also face consumers demanding more variety and markets which expand rapidly by transcending national borders due to trade agreements like NAFTA.

These developments have increased the demand for funds by cooperatives. First, product differentiation and diversification are necessary to meet the changing demand by consumers. It requires large sums of money. Second, the increasing size of markets has resulted in a few large players. Cooperatives try to prevent that the strength of their bargaining position decreases in favor of multinationals and concentrated retailers. However, they have problems to adopt the same policy as multinational corporations because financial funds are mostly acquired by retained earnings. This way of financing expansions is viable in slowly growing markets, but it has a hard time to deal with a jump in market size of the extent of european integration or NAFTA. They have been able to generate these funds up till now mainly by designing new internal financial instruments thru relaxing the requirements regarding liability and exit. However, empirical evidence (van Dijk and Poppe, 1992) indicates that the limits to the sources of selffinancing seem to be almost reached. The use of external funds like bank debt and outside equity seems inevitable. External funds may be acquired by issuing equity¹ or using debt or some hybrid source of funds.

The NCR (1990) identifies the domination of control by the members of the cooperative as the prime distinguishing feature of this organizational form. Dutch law provides possibilities for securing control by members (ter Woorst, 1989) because it provides the possibility that the members write in their charter that 'up to two thirds of the boards of directors may be appointed from the members of the cooperative'. This definition allows for more cooperative forms than the ones surveyed in Bonin, Jones and Putterman (1993). The labor managed firm or production cooperative (PC) and the investor owned or conventional firm (CF) are analysed in their paper. A PC is characterized by worker participation in firm decision making, profit sharing and employee ownership. Worker's decisionmaking right is a necessary condition in their definition. However, PCs are relatively rare in the Netherlands, whereas the agricultural

¹ The pharmacist cooperative OPG was the first cooperative in the Netherlands to do so in 1992.

and horticultural cooperatives are common.² These latter cooperatives are like a CF, with the difference that it is mainly financed by the input suppliers or buyers of the output. One way of defining an agricultural or horticultural cooperative is that it is either a certain group of input suppliers or a certain group of customers which owns a CF at another stage in the production column (marketing chain), either upstream (a purchasing cooperative) or downstream (a marketing cooperative). We restrict ourselves to marketing cooperatives in this article and refer to them as MC. Notice that the members of a MC own and decide upon the assets of a MC, but that the MC doesn't have any ownership rights regarding the assets of individual members which are used at the upstream stage. Another way of formulating this feature is that each member of a MC owns assets at two stages of production. First, the farmer makes his own investment decisions and owns the resulting assets at his farm (the upstream stage). Second, the ownership of the assets which are used to process the produce of farmers at the downstream stage is in the hands of all the members of the MC together. Figure 1 summarizes the differences between the PC, MC and CF mode of organization.

Organizational form			
Residual claimant	PC	MC	CF
Input suppliers	no	yes	no
Employees	yes	no	no

Figure 1: Organizational forms

Nourse (1922) explained the vertical integration aspect of a MC already along the nowadays familiar lines of transactions-related costs associated with asset specificity³ or sunk costs of investments at the farm (Williamson, 1985):

'Let us say that a small fruit-producing section has just been brought to bearing. The area is far from any large market, the product is perishable, and hence both risk and expense are high. Volume is not large enough to attract a private distributor. But success or failure, the salvaging of their investment, or the continuance of their life work may be at stake on the part of the growers. Hence it is argued (and demonstrated in practice) that the cooperative association of producers frequently achieves results where private outside entrepreneurship fails.'

Ex post opportunistic behavior regarding the contract terms by one's trading partners (i.e. post-harvest 'hold-ups') is reduced by vertical integration (Klein, Crawford and Alchian, 1978).

² There are nowadays substantial differences in market share, from 100% in potato starch production, 90% in credit, 85% for coops in dairy processing to \pm 38% in meat processing and purchase coops. Purchase and selling coops play a dominating role in trading and processing of agricultural products in the Netherlands. Due to economies of scale and scope in production and marketing as well as the need to decrease the costs of governance and control, there has been a big concentration tendency. In the period 1975-1993 the number of coops dropped by more than 40% to 1048 (Zwanenberg, 1993). The value of current sales is around \$ 37 billion. (The credit cooperative accounts for 744 cooperatives with annual sales around \$ 17 billion.)

³ Williamson (1985) distinguishes four kinds of asset specificity: site specificity, physical asset specificity, human asset specificity and dedicated assets.

Another advantage is that the downstream part of the MC has lower transaction costs in acquiring inputs.

There are also issues of asset specificity regarding the non-farm investments of the MC. MCs face a trade off between reducing post-harvest holdups of highly perishable farm products and getting attractive terms on outside funds for the investments of the downstream part of the MC. We will focus on the investments at the downstream part of the MC and argue that the increasing level of asset specificity, especially investments in brand names, has reduced the viability of the MC.⁴ Hypotheses are formulated regarding the

- difference in financial structure between a MC and a CF;
- difference between dutch and american MCs and CFs;
- viability of the MC as an organizational form.

A cooperative, like any other organization, has to take into account which other parties are associated with it, like owners, suppliers, consumers and labor. MCs and CFs are expected to react differently to their environment due to their different objectives. The members of a MC are special in the sense that they are both suppliers of raw materials and capital. A member of a cooperative in his role of supplier of raw materials is interested in receiving a high price for his input, the produce of the MC and the invested capital and likes to pay a low remuneration to the suppliers of capital. Their interests as a provider of funds are different, i.e. low prices of raw materials and a high return on capital. These considerations result in a different objective function of members of a MC than those of shareholders of a CF. A successful cooperative is a unique construction: the triad of (common) interest, (common) finance and (common) control, realized in a two fold construction: a society (of members) and a company (economic institution). Organizations are therefore viewed as a cluster of attributes between which complementarities have to be realized (Milgrom and Roberts, 1990 and Holmstrom and Milgrom, 1994).

The implications of the feature of member domination in MCs is analysed from a contract theoretic perspective. Starting point in the economic theory of contracts is a conflict of interest between the parties (owner of the firm and supplier of external financial funds) and asymmetric information (firm has superior information regarding the circumstances of production). The guiding principle regarding financial issues is that differences between financial instruments can be explained best by analysing the incentives of the various parties. Financial instruments differ because they imply different incentives for the parties involved. The relationship between financial structure and organizational form is established by the observation that both involve a certain allocation of control rights. This implies that the choice of financial structure and organizational form will respond to a change in the optimal level of asset specificity, which is due to changing market circumstances.

Another way of characterizing our results is to formulate them as a contribution to the Coase program. The celebrated Coase theorem (1960) states that every assignment of property rights results in a Pareto efficient allocation in the absence of bargaining inefficiencies and wealth constraints. The implied research agenda is that a fruitful starting point for research on organizations consists of the investigation of the assumptions of efficient bargaining and/or no wealth constraints. This paper addresses the viability of the MC by analyzing the impact of the lack of sufficient funds (wealth constraint) of MC members on the outcome of an efficient bargaining process between the parties associated with a MC regarding the level of asset specificity of new investments. Insufficient funds may prevent that a MC realizes a Pareto improvement in the allocation of control rights.

Section 2 identifies several stylized facts of a MC. Organizational choice and financial

⁴ Many aspects of MCs are not dealt with in this article, but are addressed in the literature, e.g. competitive yardstick (Nourse, 1922), stability (Sexton, 1986), entry (Sexton and Sexton, 1987), spatial dimensions (Sexton, 1990) and ethical attitudes (Zusman, 1993).

structure features of the transaction costs and incomplete contracts literature are presented in section 3. These perspectives are used in section 4 to address the differences between a MC and a CF. Section 5 derives comparative statics results. A conclusion and some avenues for future research are formulated in section 6. The appendix provides a formal relationship between the two branches of theory outlined in section 3.

2 Stylized facts of marketing cooperatives

MCs exist in many variations. This is to a large extent due to differences in the nature of their produce, e.g. milk is collected every day, whereas potatoes are harvested only during a certain season. However, there are also quite a few commonalities between MCs. This section lists several stylized facts of MCs and provides a detailed account of its governing bodies. These empirical regularities will be elaborated upon and explained in the following sections.

The residual claimants of MC (,i.e. the input suppliers) are usually faced with a number of obligations that differ from those of residual claimants of a CF. Five financial differences are distinguished. Members of a MC

- have a large personal financial stake in the MC, because a considerable share of the profits is added to the internal financial reserves of the MC each year;
- are to a certain extent personally responsible for financial losses⁵;
- are faced with the non-transferability of return claims during the membership period (, i.e. 'money in the dead hand');
- don't face in general financial barriers to acquire membership. New members have immediately costless access to the resources of the MC and have the same rights as established members to the returns when the MC is liquidated;
- do face exit barriers.

Two closely related differences regarding the product portfolio are distinguished. Members of a MC

- are usually organized around one raw material, e.g. potatoes, sugar, beets, wheat, milk, etc.⁶;
- are reluctant to diversify the product portfolio of the MC.

Five organizational differences are observed. Members of a MC

- have in many cases 100% delivery requirement of their inputs to the MC;
- enjoy 100% purchase assurance of their produce by the MC;
- are faced with an increasing average age of their members due to declining entry of new, young members;
- allocate voting power according to one member, one vote;
- face institutional differences regarding the Board of Directors.

Ter Woort (1989) describes several institutional differences between a MC and a CF. The Dutch law requires that the cooperative has a General Assembly, a Board of Directors and a Financial Control Committee. The General Assembly is the most important, because ultimately it determines the policy of the cooperative and evaluates the execution of the policy by the Board. In many cases, because of the large number of members and the vast region

⁵ MCs in the USA don't have this feature. A recent dutch example in which this feature was exercised is in the dairy MC Heino Krause (NRC Handelsblad, 1994). Each member had to pay about \$ 200.000 to banks in order to relinquish a huge debt, which was mainly due to mismanagement.

⁶MCs in California and the Netherlands have this feature, whereas MCs in de Midwest of the USA don't. The focus of this paper is on the former MCs.

of the cooperative, regional committees are elected which form together the General Assembly. (This is often called the Members Council⁷.) The General Assembly chooses the members of the Board and the Financial Control Committee and has the power to replace them. Members of the Board and the Financial Control Committee are almost always members of the cooperative. One explanation is that their own financial interest coincides with that of the other members. This secures members' trust in the Board. The Board is ultimately responsible for the governance of the MC, culminating in the exclusive authority to determine the prices, dividends, or tariffs paid to or by the members. However, though the Board actively determines the strategic decisions and interferes with major organizational ones if necessary, a Directorate is appointed to run the company in its day to day operational business. In regular joint meetings the Board monitors the Directorate, discusses possible options, decides on those and gives clear instructions to the Directorate. Figure 2 illustrates the relationships between the different bodies in a MC.

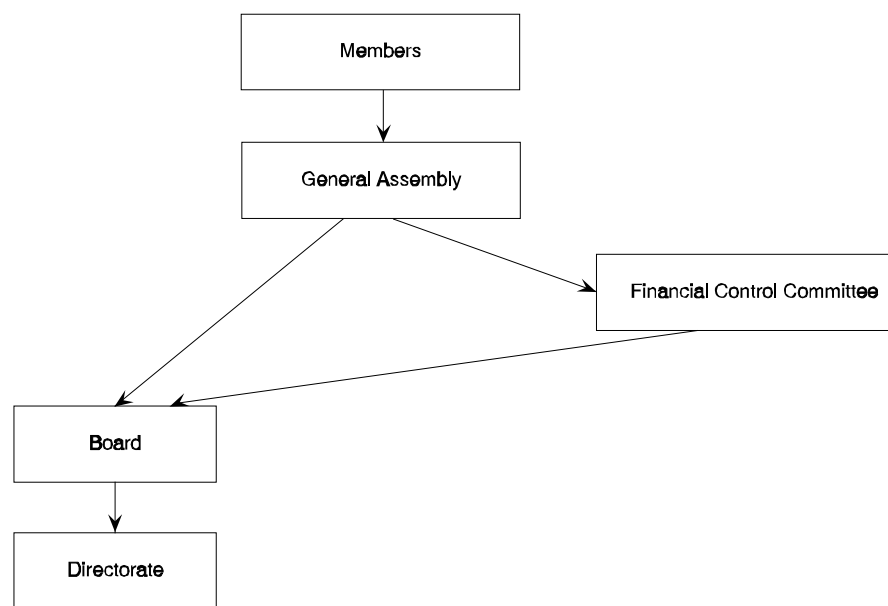


Figure 2: The organization of a cooperative

There are three important differences between CFs and MCs regarding the Board of Directors in the Netherlands. Cooperatives don't transfer the ultimate approval of the annual account to the Board of Directors. Secondly, they also don't leave the right of appointing members of the Board of Directors to the Board of Directors itself.⁸ The General Assembly takes care of these tasks. Finally, the Dutch law on cooperatives secures member control because it allows that up to two thirds of the members of the Board of Directors are appointed

⁷ Its size varies between 80 and 150 persons and it consists of members only.

⁸ A board of directors in large CF in the Dutch setting is an in-group which selects its own successors (principle of cooptation). Shareholders can only by majority vote not accept a candidate. They have no active rights to appoint one or, in many cases, even to propose one.

by the General Assembly of a MC.⁹

3 Property rights

This section will analyze the choice of organizational form and financial instruments from a rights of control perspective. The main ingredients are a conflict of interests and the observation that not every possible contingency can realistically be described in a contract. Williamson (1985) and Grossman and Hart (1986) argue that ownership structure can be best understood in terms of the control rights that it confers. Debt and equity are besides financial instruments also governance instruments in this approach. Section 3.1 recalls the familiar transaction costs economics relationship between the mode of exchange and the nature of investment.¹⁰ Section 3.2 focusses on the control aspects of financial instruments and relates them to the nature of investment. Section 3.3 focusses on the incomplete contracts literature because it is more specific about the forces driving financial governance than transaction costs economics.

3.1 Transaction cost economics and organizational governance

An organization is viewed as a nexus of incomplete contracts with employees, managers, suppliers, buyers, financiers, and so on. The incompleteness of contracts causes ex post bargaining problems (transaction costs) in situations where parties make irreversible, specific investments, i.e. choose assets which have a higher value within the relationship than outside it. The ex post bargaining positions will depend on the particular organizational form. Markets and hierarchies are the two extremes on a continuum of possible organizational forms. The governance costs of exchange of goods and services via markets ($M(k)$) entails relatively low costs when the specificity of assets k is low. No bureaucratic apparatus is required to exercise control and implement changes, i.e. the start-up costs are low. The competitive forces in a market also provide the incentives to make the right decisions. However, the governance costs of markets increase relatively fast when the specificity of assets increases. Adaptations are more slowly when the bilateral dependency increases, because the bargaining process has to result in an agreement which everybody accepts. The reverse holds for hierarchies. Governance cost $H(k)$ of a hierarchy are relatively high at a low level of asset specificity because a bureaucratic apparatus has to be set up. However, more flexible responses are possible in unforeseen contingencies than in markets in situations with a high level of asset specificity, because those who hold the residual decision rights are allowed to make decisions (intervene selectively). The governance costs $X(k)$ of hybrid organisations, like franchises and joint ventures, are represented by a pattern which is in between. They have on the one hand more incentives to perform well compared the hierarchies, but on the other hand they face more rules and restrictions than markets. The

⁹ There are also differences between Anglo-Saxon and Germanic board of directors (Moerland, 1994). Anglo-Saxon Boards of Directors have a one-tier system, in which executive managers and outside experts are respresented. Boards of Directors in Germanic countries have a two-tier board system, consisting of an executive board and a supervisory board. (The law specifies certain requirements regarding employee representatives in the supervisory board.) Insiders and outsiders have been separated in a two-tier system, which may resolve some of the problems noted by Jensen (1993). However, the principle of cooptation in the executive board in The Netherlands seems to offset the advantages of the two-tier system regarding the effectiveness of the executive board (Boot, 1994).

¹⁰ This article employs the asset specificity branch of transaction cost economics. Barzel (1982) advocates a focus on measurement problems. Empirical evidence has to tell which approach is most suitable in agricultural and horticultural markets.

above observations are summarized by $H(0) > X(0) > M(0)$ and $H' < X' < M'$, where $H(k)$ ($X(k)$, $M(k)$) represents the costs of hierarchical (hybrid, market) governance as a function of the level of asset specificity k . Figure 3 provides a graphical illustration. It implies immediately that for projects with low levels of asset specificity markets, for intermediate levels of asset specificity hybrid organizations and for high levels of asset specificity hierarchies are predicted.

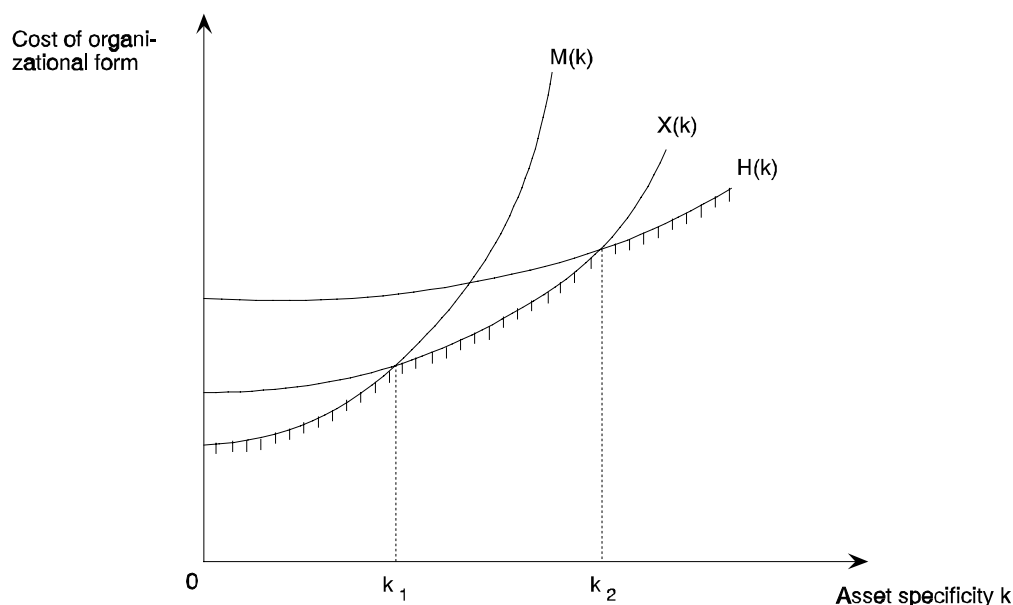


Figure 3: Organizational form and asset specificity (Williamson, 1991)

3.2 Transaction cost economics and financial governance

Williamson (1988) approaches the choice of financial instruments from the same perspective as the choice of organizational form. Each financial instrument specifies certain control rights and how returns depend on outcomes. Debt is characterized by rigid rules, like interest payments at fixed intervals in time, liquidity tests, pay back requirement at the end of the term, and the creditor has claim priority in the contingency of bankruptcy. The rigidity of the rules governing debt means that they apply to all possible contingencies. It implies that the start-up costs of the design of a debt contract are low and that its costs rise sharply with an increase in the level of asset specificity. Equity is a governance structure in which financiers are given rights of control. Outside equity assigns financiers the role of residual claimants in good as well as bad times, there is no pay back date and a Board of Directors is appointed. This Board gives financiers confidence that their resources will be used in their interests and will result in lower cost of capital than debt in situations with a high level of asset specificity¹¹. Equity is more complex than debt because all kinds of control mechanisms have to be developed, i.e. provisions regarding the course of action have to be developed for different contingencies¹². The startup costs of equity are therefore higher than those of debt. The claims regarding start-up costs entail that $0 < D(0) < E(0)$, where $D(k)$ ($E(k)$) is the costs

¹¹ Section 5.2 will address the differences between equity in the Netherlands and the USA.

¹² An example is the Dutch dairy cooperative Campina Melkunie: 700 out of the 11,000 members are engaged in a local administrative function (Jansen and Wantenaar, 1992).

of debt (equity) as a function of the level of asset specificity. The costs of both financial instruments show a positive relationship with the level of asset specificity, but the costs of debt increase faster than the cost of equity. The rigid character of rules associated with debt is responsible for this feature.¹³ These observations imply that $D' > E' > 0$.

Only two financial instruments have been distinguished: debt and equity. There are also hybrid forms, which have characteristics of both debt and equity. The costs of these financial governance structures are also a function of the degree of asset specificity. They are indicated by $Y(k)$, where $D(0) < Y(0) < E(0)$ and $D' > Y' > E'$ (Williamson, 1988). Figure 4 represents these properties. The choice of financial instrument is determined by the nature of investment. The prediction is that debt will be used for projects with a low level of asset specificity ($k < k_3$), whereas equity will be used when the degree of asset specificity is high ($k > k_4$). Hybrid financial governance structures are expected for intermediate levels of asset specificity ($k_3 < k < k_4$).

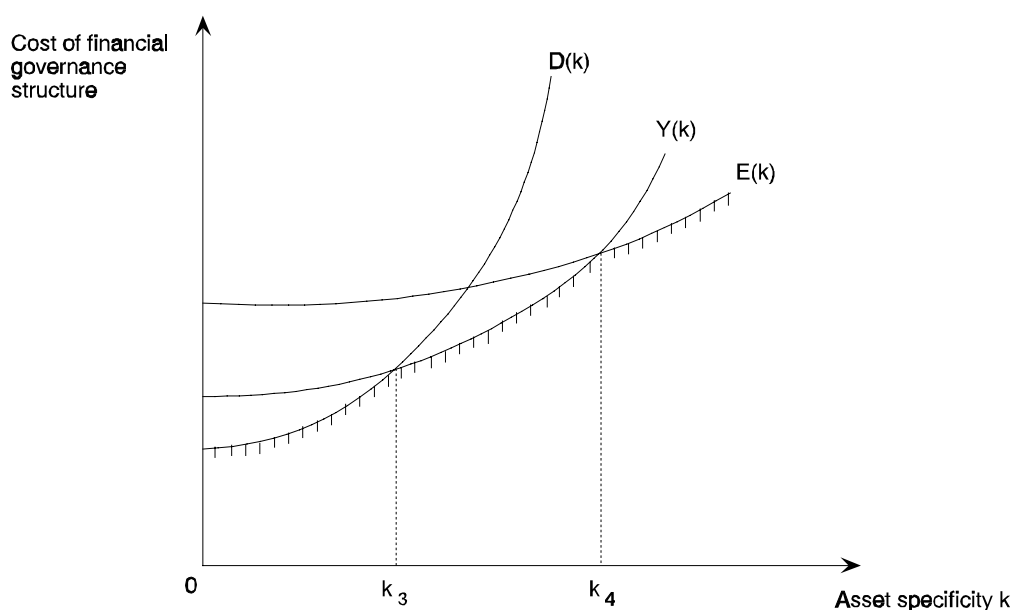


Figure 4: Financial governance structure and asset specificity

3.3 Incomplete contracts

The starting point in the incomplete contracts literature is the same as in transaction cost economics: it is too expensive to describe all possible contingencies in a contract and to formulate an agreement for every possible situation. Contracts are incomplete in the sense that only the most prominent eventualities are usually described in the real world. Unforeseen contingencies are covered in an incomplete contract by assigning somebody the rights of control. This implies that contracts will not only consist of financial instruments based on verifiable information, but will also specify decision power in situations which are not explicitly

¹³ Gertner, et. al. (1994) argue that internal capital providers also experience stronger incentives to monitor than providers of external capital because they own the business unit, whereas the latter don't. The gains from monitoring are therefore higher for the former than the latter.

covered by the contract.¹⁴

Aghion and Bolton (1992) stress a conflict of interest, the incompleteness of ex ante financial contracts and a wealth constraint. The allocation of control rights is important from an efficiency point of view in a world of incomplete contracts when there is a conflict of interest between the investor (provider of funds) and the members of the MC (entrepreneurs). It entails a trade-off between the optimality of ex ante investments and ex post efficiency. Each financial structure implies a certain control structure. Investor control (voting equity) is attractive in satisfying ex ante investment constraints regarding the provision of funds. However, it doesn't guarantee ex post efficiency, because the wealth constrained entrepreneur is not always able to establish Pareto improvements in the ex post renegotiation process. (The wealth constraint reflects the need of the members of a MC to borrow funds.) The attractive feature of entrepreneurial control (non-voting equity) is that the investor doesn't face any wealth constraint in the ex post renegotiation process. This results in ex post efficiency. However, the investor might not recoup his ex ante investment and therefore not adopt surplus generating projects. Debt is the third financial instrument. It involves contingent control because the results determine who is allowed to decide. The entrepreneur decides as long as things go well, whereas decision power switches to the debtor when financial obligations can't be met. Contingent control may be a desirable financial instrument because it may improve upon either the ex post efficiency problem of investor control or the ex ante participation problem associated with entrepreneurial control. The size of inefficiencies differs between financial instruments and determines the range of projects, in terms of the level of asset specificity k , which will be carried out by a particular form of finance. The optimal financial structure consists of a combination of financial instruments such that the residual decision rights are

¹⁴ The similarity between the complete and incomplete contract literature is that incentive considerations are the main issue. Complete contracting analyses emphasize the return aspects of financial instruments. An example is the model by Jensen and Meckling (1976) in which securities only vary in the terms of income streams. The manager decides (i.e. has the control rights) in all circumstances, regardless the composition of the capital structure. This is in sharp contrast with the incomplete contracting framework, where issues of property rights and rights of control are the focus of analysis.

Notice that the complete contracting approach has some implications for the financial structure of MC. Jensen and Meckling (1976) argue that external equity is not attractive from a cost minimization point of view. External financiers know that their provision of funds will reduce the marginal costs of non-profit maximizing activities of managers. Their response is to increase the rate at which funds will be made available. This observation applies to the members of a MC because their objective function is not completely aligned with those of external financiers, as has been pointed out in section 1. The right incentives for cost minimization are provided when the members of the cooperative are the sole residual claimants. This is established by external funds completely consisting of debt. Debt requires a fixed amount of money which has to be paid back after some time. The remaining loss or profit is on account of the cooperative. Financial structure also affects investment. A feature of debt associated with a CF is limited liability, i.e. shareholders are not personally responsible for paying back the loan when the organization goes bankrupt. This encourages the choice of unnecessary risky projects. Bankruptcy costs are carried by the providers of the external funds, whereas successes accrue to the owners. These considerations reduce the attractiveness of debt in favor of equity. Members of a MC have personal liability, i.e. they are to a certain extent personally responsible for payments in the case of bankruptcy. This limits the adoption of risky projects by MC. (This is one explanation for the stylized fact that a MC usually concentrate on one input, because it reduces the portfolio of candidate projects.) The optimal financial structure takes both cost minimization and investment selection issues into account. Both aspects point towards a higher debt/equity ratio for MCs than CFs. This conclusion is supported in the transaction costs/incomplete contracting framework for $k \in [k_3^{MC}, k_3^{CF}]$, i.e. a MC has more debt, and $k \in [k_4^{CF}, k_4^{MC}]$, i.e. a MC has less equity.

allocated in each unforeseen contingency to the right person¹⁵.

4 Cooperatives versus corporations

This section formulates differences between MCs and CFs regarding their organizational form and financial structure. Section 4.1 and 4.2 will analyze several instruments which have the potential to discipline discretionary behavior regarding the use of funds by managers of either a MC or a CF. Democratic decision making and control systems are analysed. Section 4.3 addresses financial differences.

4.1 Democratic decision making

MCs are usually organized around one product. This is viewed as a basic element for a successful cooperative, because it creates a common clearly perceived interest and a resulting common willingness of producers with a weak market position to work together. In case: combined processing of products realizes economies of scale and substantially combined product supply realizes higher prices. It enhances a very clear and straightforward way of accounting costs and benefits and of distributing the results, so that members can control the company effectively. The one product feature supports and strengthens the 'organized trust' perception of a MC, which facilitates decision making.

A disadvantage of democratic decision making in a MC is that the process of opinion- and decisionmaking regarding important policy shifts is more time consuming than in other organizational forms. This problem seems to be increasing when markets become more complex.

There are also problems in a strategic context. First, a consequence of the time consuming democratic decision making process is the wide spread practice of MCs to determine and fix their input price once a year. Members want to know and cash this price, which is the remuneration of their deliveries to the MC, as soon as possible. A first mover disadvantage in the competition with rivals is implied, especially when a MC has a high market share. A rival CF finds itself in a comfortable position in that it is able to choose its price later, sometimes at a different level. Second, an increase in the degree of asset specificity (k) exacerbates the disadvantages a MC has to face. Investments with a higher k entail less involvement of the members, because they lack the specific knowledge to form an opinion and give their fiat. Higher outlays are therefore required for a well functioning democratic process of decision making and the preservation of the 'organized trust'. The process of decision-making will also take more time because the degree of complexity probably increases with a higher level of asset specificity, especially in a globalizing economy. Third, if k increases

¹⁵ Notice the difference between Aghion and Bolton (1992) and Williamson (1988). The first authors consider non-voting and voting equity as the two extreme financial instruments in the sense that they are unilateral control allocations. Debt is considered an intermediate financial instrument in terms of control rights because it involves a contingent allocation of control. Williamson doesn't include non-voting equity in his analysis. However, it is straightforward to incorporate this 'no-strings attached' source of funds $P(k)$ in figure 5. Define $P(k)$ such that $P(0) < D(0)$ and $P' > D'$. A second difference is the implied 'pecking-order theory' of financial governance structures. It has just been pointed out, and is immediate from figure 4, that this depends on the degree of asset specificity in Williamson. No such relationship emerges from the model of Aghion and Bolton. The monetary returns, non-pecuniary private benefits and the probability of the signal regarding the underlying state determine the pecking-order. The ordering is independent of the level of asset specificity. This result is due to the highly stylized nature of their model, which has only two states of nature and two possible actions. However, some of the other costs of the use of financial instruments delineated by Williamson can be incorporated in their model. (The appendix establishes a formal relationship between these two approaches.) We will use figure 5 in the analysis of the institutional complementarities between financial governance and organizational governance.

without a direct relation with the original activities of the MC (and thereby with the basic activities of the members), members will be more pessimistic regarding the corresponding value and risks than shareholders of a CF. This causes reluctance amongst members to accept that a large part of the surplus will be kept as retained earnings, unless an acceptable rate of profitability on other investments (including their own farm) will be realized.

However, there are at least three forces pointing in another direction. First, democratizing decision making is likely to generate a merging of opinions along the lines of the Blackwell and Dubins' (1962) result. Second, democratic decision making is less vulnerable to successful politicking because bad proposals are winnowed out (Tullock, 1992). Third, the huge financial involvement of the financiers in the success of the cooperative is in general a strong commitment to acquire substantial information in order to evaluate policy decisions.

4.2 Control systems

Internal as well as external control systems serve a role in disciplining corporate decision making. Personal liability and the Board of Directors are considered from the former perspective, whereas capital, corporate control and input markets serve a role in the latter.

PC seem to be a governance structure which handles the problems of failing internal control systems particularly well. Four aspects of the input suppliers are responsible. First, input suppliers have a large personal financial stake in the downstream firm. It turns out that third parties are even willing to provide debt without any liability of the input suppliers when they have generated a high level of 'inside' equity. This equity stake held by agents provides a credible signal that they will do their job of policing internal decision making well. Second, section 2 has pointed out institutional differences regarding the organization of the Board of Directors. They are favorable for the functioning of the Board of Directors in a MC. This is enhanced by the feature of personal liability of (internal) financiers of the MC. This provides input suppliers with strong incentives to collect information and force the Board of Directors to take decisions in their interest. These incentives seem to provide a setting in which the internal control system will work well. Both the organization of the Board of Directors and the personal liability of their members imply that the incentives to put forth effort in the internal control system of a MC are superior to those of a CF. Members of the Board of Directors of a CF face much weaker financial incentives to implement good policies, which opens the door for managers and members on the Board of Directors to realize certain personal goals at the expense of the value of the firm.¹⁶

There are several effects of external control systems. First, the recent curbing of the disciplinary functions of the capital market in the USA frustrates corporate decision making. It is obvious that the importance of organizational processes and procedures has increased in order to compensate for the reduced disciplinary power of the MC. However, Jensen (1993) argues that they often fail in CF. He posits that this is also due to the restrictions which have been imposed on capital markets. One of the reasons for the failure of internal control systems is

'the curbing of what I call active investors. Active investors are individuals or institutions that simultaneously hold large debt and/or equity positions in a company and actively participate in its strategic direction. Active investors are important to a well-

¹⁶ These attractive features of a MC don't imply that a MC necessarily functions better than a CF, because its shares are not traded in the stock market. A CF with a listing on the stock market has committed itself to report regularly and according to certain standards about its state of affairs. Another attractive feature of the publicly traded CF is that additional external funds can be obtained by issuing new shares, whereas a MC often has to go thru cumbersome negotiations with the providers of external funds.

functioning governance system because they have the financial interest and independence to view firm management and policies in an unbiased way. They have the incentives to buck the system to correct problems early rather than late when the problems are obvious but difficult to correct.'

Second, the lack of the market for corporate control enhances the incentives for members in a MC to generate a well functioning internal control system even further. Shares of a MC are not traded in the stock market. Members therefore face difficulties in trading their financial stakes. Stockholders can easily get out of a CF by selling their stock in the market. Members of a cooperative can't and therefore pay more attention to the way the cooperative is being run.¹⁷ Finally, a similar incentive is provided by the lack of a market for inputs. The absence of a market for inputs eliminates for a MC the possibility of comparing its own performance with those of rivals. It becomes therefore more attractive to put forth effort in the internal control system in order to compensate for the absence of the yardstick of the market. The lack of the market for corporate control and the lack of a market for inputs provides a commitment to participate in the internal control system.¹⁸

Notice that the superior functioning internal control system of the MC either creates some leeway for either the input suppliers to advance an input price which is above the market price, or not to provide the efficient level of attention in the internal control system, or slack, or increase the financial reserves of the MC. However, the extent to which these activities are allowed by the market depends on the level of asset specificity.

Figure 5 summarizes our account of the differences between MCs and CFs. It is an extension of figure 3 in the sense that two hierarchical governance modes are distinguished: cooperatives and corporations. A hierarchy is a cost minimizing governance structure in figure 3 when the degree of asset specificity of investments is higher than k_2 . Cooperatives and corporations are examples of hierarchies and have therefore to be analysed in this domain. The $H(k)$ -curve of a MC is below (above) the $H(k)$ -curve of a corporation when the advantages of a cooperative outweigh (are smaller than) the disadvantages. Section 4.1 and 4.2 imply that the $H(k)$ -curve of a MC is steeper than $H(k)$ -curve of a CF.

¹⁷ Holstrom and Tirole (1993) model the relationship between the liquidity of a market and the informational content of prices. Markets with MCs are less liquid, because its shares are by definition not traded. Informed traders (speculators) will spend less time on monitoring in these markets because it is harder for them to disguise their private information. An implication is that the ability to design more efficient contracts to discipline managers is reduced. Notice that this doesn't affect a MC or a CF differently, because they have access to the same public information, i.e. the stock price of CFs with a listing on the stock market. However, the MC is free riding on this information, which seems to reduce the importance of the competitive yardstick argument in favor of MCs (Nourse, 1922, Sexton, 1990). Observe that this argument has probably more bite in the USA than in the Netherlands, because the market for corporate control hardly exists in the latter country.

¹⁸ The incentives in a MC to participate heavily in the internal control system do not only have favorable consequences for its functioning. Section 4.1 has pointed out that an often observed disadvantage of the MC is that they are rather slow and conservative in their decision making processes compared with CF. This reduces their flexibility and creates inertia with respect to their reaction to changing market circumstances. (An advantage of a slow, democratic process with conservative voters may be that the approval of a policy decision will be carried out fast and without much sabotage.) The additional problem of attracting new funds is addressed in section 3.3.

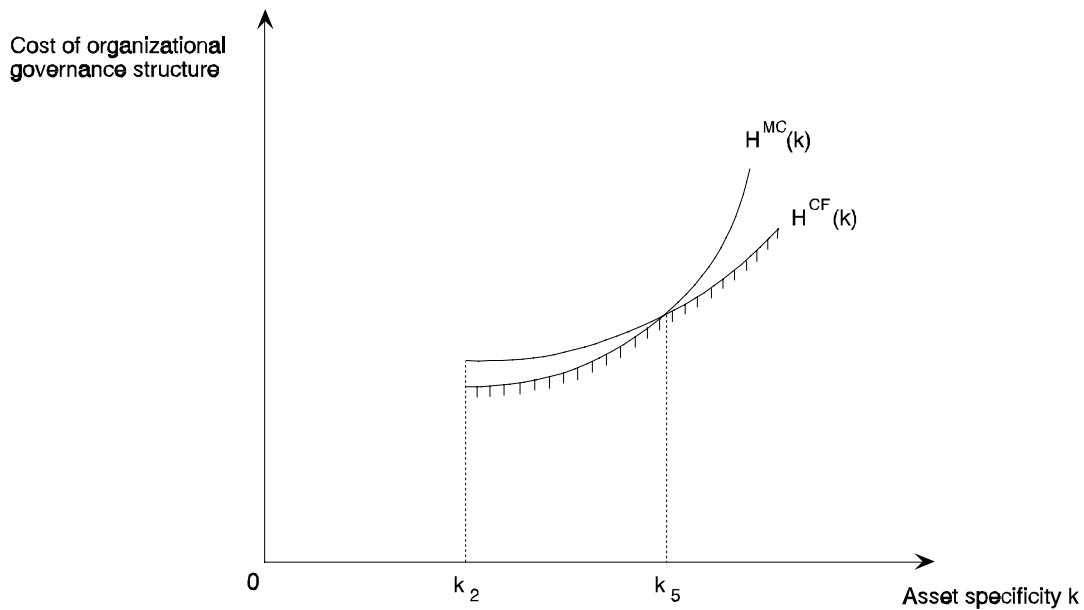


Figure 5: Marketing cooperatives versus conventional firms

Figure 5 reflects a situation in which a MC may be an efficient governance structure. The conclusion is that MCs may be a viable organizational form for intermediate levels of asset specificity, i.e. $k_2 \leq k \leq k_5$.¹⁹ (A MC will not emerge or disappear when the costs of its governance structure are higher than those of a CF for every value of k higher than k_2 , i.e. $k_2 \geq k_5$.) Figure 5 also indicates that the members of MC have some leeway to advance their interests as input suppliers when $k_2 < k_5$. This is costly for this governance structure. However, market demand and competition by CFs provides an upperbound to the achievement of these interests (Hart, 1983 and Scharfstein, 1988).

4.3 Financial differences

MCs have less freedom in their choice of financial structure than CFs, because their charter requires member control, which precludes the design of an efficient number of contingencies regarding the allocation of decision power. MCs are restricted to the use of non-voting equity and debt as sources of funds, because MC members feel strongly that the integrity of the MC is destroyed when control has to be shared with non-members. However, internal financial constraints may force them to acquire outside funds. This is problematic in the competition with other organizations, because the domination of control requirement will most likely result in a higher premium for outside funds. Two crucial aspects of financial instruments are responsible for this: the financial risk and the allocation of decision rights regarding the use of funds. Asset ownership, i.e. those who carry the business risk, does in itself not confer any decision making rights. However, CFs assign these two aspects in the

¹⁹ Observe that MCs are predicted in the above analysis from an efficiency point of view, with asset specificity as the main determining variable. This hypothesis contrasts sharply with an evolutionary account of MCs. MCs emerge in the framework of Arthur (1989) as historical accidents and their perseverance is due to increasing returns in the form of path dependencies. MCs which were originally chosen became gradually locked in and were improved upon little by little. The notion of long run efficiency doesn't play a role in such an analysis because natural selection processes focus on short run survival.

design of their financial instruments to their outside equity holders. The reason is that there is usually a negative relationship in financial contracts between the extent of decision-making rights and the premium received for providing outside capital. External financiers must be compensated with a higher premium when control rights are denied to them, in order to have them provide significant funds. The domination of control requirement puts MCs at a disadvantage compared to CFs in the competition for external funds, because they do not allocate the decision-making rights regarding the use of outside funds to the outside financiers. An inefficient level of asset specificity of new investments may be the result.

One of the stylized facts of a MC is that a significant amount of inside equity is provided by keeping a considerable share of the profits as retained earnings each year. This is often seen as a major advantage of the MC, because it provides an inexpensive source of funds. However, it also has a disadvantage in the sense that it is a governance structure which is more 'forgiving' than debt. Inside equity provides weaker incentives than debt to perform well.

5 Comparative statics

Markets for agricultural and horticultural products have evolved from a growth period to a period of saturation. Current markets require specific investments in order to meet the specific demands in the many niches of the market. The optimal value of k is increasing. Comparative statics results regarding the choice of organization (5.1) and financial instruments (5.2) will be analysed with respect to the change in market conditions. Section 5.3 formulates a robust prediction regarding the change in the level of asset specificity and the choice of organizational form.

5.1 Organizational attributes

The delivery/purchase requirement is a crucial aspect of a MC. It assures the MC of raw materials, whereas CFs have to compete for inputs in the market. Especially shortage markets seem to be attractive for such a requirement. Another feature is that it used to be an important instrument in generating retained earnings. There was no market for inputs, because all input suppliers were member of a MC. This implied that the Board of Directors of a MC could exercise some discretion in the determination of the input price paid to the members in order to build up the retained earnings. This situation was prevalent in the fifties and sixties in Europe. However, markets for raw materials of MC are quite different today. Excess supply is common, which is especially problematic for MC. In processing and in selling, growing output made high investments in new capacity necessary in order to absorb the deliveries of their members. This made MCs especially vulnerable to downward changes in input volumes, resulting in lower prices paid to members. The Dutch cooperative pig slaughter houses are an example. The 100% purchase requirement necessitated increasing slaughter capacity in order to process the growing pig production in the eighties, which absorbed thereby the largest part of the internally generated financial means. Investments in product and market development with high levels of asset specificity in the form of products with brand names could not be realized. Nowadays at low pork prices the MC face a tradeoff: if they pay too less for the pigs, they have to face underutilisation losses because farmers sell the pigs to the private slaughter houses, if they want to utilize capacity fully, they have to pay too much for the pigs. This results in a disastrous financial situation. This could be partly offset by reducing the 100% delivery requirement, but will result in adverse selection problems (Akerlof, 1970). Members sell the inputs with the highest quality in the open market, whereas the remaining production is delivered to the MC (NRC Handelsblad, 1992). Another effect is that it

undermines the 'organized trust' perception of the members, which may result in more cumbersome democratic decision making and a reduced willingness to approve investment projects with a long horizon. It is further undermined by the tendency of MCs to respond to these new circumstances by restricting free entry into the MC, limiting personal liability, relaxing the one member one vote feature and reducing the non-transferability of return claims. The viability of the MC seems therefore questionable when the attractiveness of the purchase/delivery requirement is reduced.

5.2 Financial attributes

This section addresses the relationship between ownership structure and the costs of equity and debt. The $E(k)$ -curve of cooperatives will in general be above those of CFs. It is not attractive for outside financiers to carry financial risks in cooperatives, because people with (partially) different interests are allowed to spend the money of outside financiers in ways they like best. Providers of equity have to be compensated for the lack of decision-making rights, which is due to the requirement of member control. The value of k_4 will therefore be higher for cooperatives than for other organizational forms. This implies that there are values of k for which a CF will use outside equity, whereas it is efficient for a cooperative to use other financial instruments. The nature of these other financial instruments depends on the value of k compared to k_3 . Debt will be used when $k \leq k_3$, whereas a hybrid form of finance will be used when $k > k_3$.

There are several reasons why also k_3 of a MC will be higher than the k_3 of a CF. The NCR (1990) mentions four aspects of MC which are likely to facilitate the acquisition of debt from third parties. The delivery and purchase requirement between the input suppliers and the MC does not only prevent adverse selection problems regarding the quality of inputs, but it also enhances the continuity of the cooperative and reduces the fluctuations in the rate of return. Second, there is free entry into MC, but members face an exit barrier. Free entry entails not only that a new member has the same access to resources of the cooperative as the established members, but also that he has gained equal rights to the returns in the liquidation contingency. They have to either pay a fee when leaving (the Netherlands) or stay for a minimum number of years with the MC (Germany). This exit barrier strengthens the continuity and the predictability of the MC. Its main purpose, however, seems to be to prevent attracting members whose only intention is to free ride on the existing resources of the MC. It is a scheme similar to Lazear (1988) in the sense that wealth constraints regarding an entry fee in order to obtain membership of a MC are circumvented by having payments spread out over the membership period. Third, members are (to a certain level or even totally) liable for the debts of the MC, depending on the structure of the MC. This makes the solvency of the cooperative more sound, which creates extra possibilities to increase the amount of debt. Fourth, members of a MC are usually required to pay every year a financial contribution every year (by withholding part of the paid out price) in order to increase the reserves of the MC. This also enhances the ability of a MC to acquire debt at favorable terms.

Figure 6 summarizes the above observations. It is an extension of figure 4. The cost minimizing financial governance structure is drawn for a MC as well as a CF. It is assumed that the $Y(k)$ curve is the same for both organizational forms.

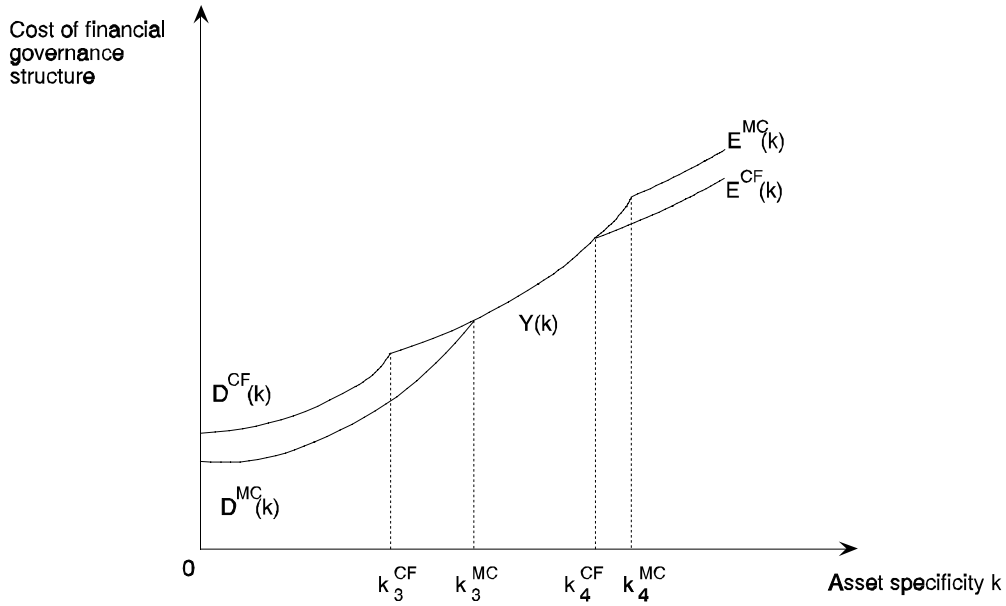


Figure 6: Financial instruments as a function of governance structure

Our conclusions regarding the financial structure of MCs and CFs when MCs are viable, i.e. $k \in [k_2, k_5]$, are summarized by

$k < k_3^{CF}$: MCs and CFs use debt
$k \in [k_3^{CF}, k_3^{MC}]$: MCs use debt CFs use hybrid form of finance when $k < k_4^{CF}$ equity when $k > k_4^{CF}$
$k \in [k_3^{MC}, k_4^{CF}]$: MCs and CFs use hybrid form of finance
$k \in [k_4^{CF}, k_4^{MC}]$: MCs use hybrid form of finance when $k > k_3^{MC}$ debt when $k < k_3^{MC}$ CFs uses equity
$k > k_4^{MC}$: MCs and CFs use equity.

The driving force behind the choice of financial instruments in section 3.3 is that the impact of the wealth constraint of entrepreneurs differs for each financial instrument. It is obvious that a relaxation of this constraint by the internal generation of funds reduces the hold-up problem of the use of non-voting equity by the MC. There are two sources of internal MC funds: financial contributions by MC members and retained earnings. An important aspect of financial contributions by MC members is the transferability of claims to returns. Transferability differences between CFs and cooperatives are likely to affect investment and capital formation. Equity shares of a CF can at every instant of time be traded in the stock market, i.e. they are transferable. Members of a MC have only claims to the returns of assets during the membership period. They often do not have individual and transferable ownership rights in the assets of the cooperative. Returns during the membership period have therefore to be at least as high as returns elsewhere. This limited appropriability problem requires that the internal rate of return on the assets of MCs must be higher than that of CFs if internally financed investment is to be chosen when the median membership duration is shorter than the project's recoupment period (Bonin, e.a. 1993). MCs using mainly internal funds to finance capital will therefore 'underinvest' relative to comparable CFs when a member's individual claim to the returns is non-transferable. The problem is getting worse due to adverse changes

in the demographic composition of the member population. Retained earnings are also under pressure because the delivery/purchase requirement is harder to maintain in the current market.

The MC has a number of instruments available (section 4.1 and 4.2) which may generate sufficient leeway to compensate for the restrictions on the choice of financial instruments imposed by its charter. Members of MC face to a certain extent personal liability regarding losses. An important effect is that it makes the MC less vulnerable to adverse shocks than a CF, i.e. MCs seem to have the ability to survive a longer period of temporary losses than CFs. Personal liability reduces the probability of liquidation in a multi-period version of the model, because it reduces the wealth constraint in the ex post renegotiation process. This will increase the range of set-up costs k of projects which a MC can get financed by outside investors. The delivery/purchase requirement and the personal liability features are in principle able to compensate for disadvantages of the MC, but the change in market circumstances has undermined the strength of these two mechanisms. An inefficient level of asset specificity of new investments may be the result. This applies especially to situations where the size of the market grows faster, due to European integration, than the growth of organizations based on internal means. The low financial reserves of Irish dairy cooperatives, which is due to the poor financial situation of their members, forced them to drop their requirement of member control in order to get a listing on the stock exchange (NCR, 1990). They were not able to generate sufficient capital in order to finance the expansion of scale and investments for product improvements.

MCs seem to have a different portfolio of banks from which they attract financial funds than CFs. It is usually much narrower. Aoki (1990) has pointed out the advantageous monitoring effects of having a main bank instead of many banks in an analysis between different economic systems. It seems that the same arguments can be applied to different organizational forms in one economic system. A closer relationship between an investor and an entrepreneur implies that the investor receives a better signal regarding the bad state. It reduces the degree of incompleteness of the ex-ante contract and therefore increases the range of set-up costs k of projects which will be implemented.

Important differences regarding equity between the USA and the Netherlands are the limited rights of shareholders and the virtual non-existence of the market for corporate control due to the extensive use of anti-takeover measures in the Dutch setting (Boot, 1993). The providers of equity are the owners of the CF in the USA, whereas all kinds of restrictions are imposed by the Dutch law on the rights of outside financiers. Outside equity holders in the Netherlands receive a standard dividend, whereas the remaining part of profits may go to employees and slack. Equity does hardly carry any control rights for the shareholders and therefore doesn't differ much from debt. This implies that the value of k_4 is larger in the Netherlands than in the USA, because E' is almost the same as D' in the former country.²⁰ The virtual absence of the market for corporate control is worse for CFs than MCs, because the member control feature of MCs doesn't allow much influence of this disciplinary mechanism anyway. The value of k_5 will be higher. MCs are therefore predicted to be (non) viable at (lower) higher levels of k in the Netherlands than in the USA.

²⁰ This is reflected in the empirical evidence. Stock price/earnings ratios in Amsterdam are by far the lowest in Europe (Bennis and van Leeuwen, 1992). New stock is issued at 24 times the annual profits in the United States of America, whereas it is only 12 times the annual profits in the Netherlands. These institutional features suggest that Dutch firms have on average a higher debt/equity ratio than American firms, which is supported by Remonola (1990).

5.3 System of attributes

Several attributes of a MC and a CF as a function of the level of asset specificity have been addressed and are summarized in organizational and financial differences in figure 5 and 6. They have to be aggregated in order to say something about the efficiency of a particular system of attributes. This can be done in many ways. Just adding up with equal weight the organizational and financial differences results already in many possibilities, because the slopes and the intersections of the various curves can't be pinned down exactly in our analysis. For example, an increase in the level of asset specificity may result in a switch from a debt (debt, equity) financed MC to a debt (equity, equity) financed CF. Another possibility is that the financial governance changes when the level of asset specificity changes, whereas the organizational governance stays the same. However, the robust hypothesis which emerges from all these possibilities is that an increase in the level of asset specificity will not result in a switch from the CF-cluster of attributes to the MC-cluster of attributes.

6 Conclusion

This article has investigated some aspects of the viability and financial structure of the MC. Contract theoretic notions have been used to analyse MCs. The analysis is mainly comparative in nature in the sense that relative differences between different financial instruments and different organizational forms were the focus of analysis. It has been pointed out by Williamson (1988) that the choice of capital structure is closely related to the choice of organizational governance. To quote: 'The corporate finance decision to debt or equity to support individual investment projects is closely akin to the vertical integration decision to make or buy individual components or subassemblies.' This paper has shown that these decisions are indeed closely related, but not identical.

We have argued that the complementarities between financial and organizational governance results in the hypothesis that an increase in the level of asset specificity will never result in a switch from a CF to a MC. The MC is likely to be an efficient, even superior, governance structure for intermediate levels of asset specificity in markets which are characterized by shortages. However, it seems that the transition of an economy from shortage to surplus markets together with the limited financial capabilities of the MC members reduces the (contract theoretic) viability of the MC. First, the disappearance of the shortage situation makes members less indispensable for the MC. Second, the delivery/purchase requirement can't be maintained anymore, which results in cream skimming by downstream firms and undermines the triad of (common) interest, (common) finance and (common) control. Third, lower margins and technological advances have had an adverse effect on the demographic composition of the member population, which drives MC into activities with an emphasis on short run returns. Finally, the twofold construction of a society (of members) and a company (economic institution), i.e. ownership of an adjacent stage in the production column with the requirement of membership control, limits the asset specificity range of projects which outside financiers are willing to fund.

An important topic for future research is to investigate the possibility of designing financial instruments which on the one hand maintain the special cooperative character and on the other hand eliminate the inefficiencies associated with this organizational form. Section 3 has addressed in this respect some interesting developments in the financial literature. This seems not only applicable to the feature of domination of control by the members of the cooperative, but also to the feature of the voting power of the members and the Board of Directors. Voting power in cooperatives is usually not related to the amount of money invested but to membership. Shares in a privately owned company determine the voting power of the

owners, but this strong link between financing and voting is missing in cooperatives. Each member in a cooperative has one vote, regardless of the financial stake of a member. This seems problematic with respect to maintaining the largest, and usually most efficient, farmers as members. However, they are a crucial element in the viability of the MC. Most solutions which are nowadays considered within the MC structure consist of some differentiation in the financial terms being offered to members. Examples are participating preferences share and quantum discounts. It takes account of the variety between the members and may resolve the horizon problem. This seems inevitable, even though it undermines the principle of equity of members. However, the MC will most likely continue to face problems in competing successfully with a CF. Both the low degree of indispensability of MC members in markets without shortages and the low degree of complementarity between the post-harvest holdup problem and the specificity of assets regarding the final product renders the vertical integration aspect of a MC as an unlikely outcome from an efficiency point of view (Hart and Moore, 1990). Other solutions for the problems of MC challenge the viability of the structure of the MC. Different organizational arrangements (association, participation company) may have to be considered to address the specific problems of enterprises in agricultural and horticultural markets, such as the lack of countervailing power when the MC is abandoned. It is obvious that an integrated approach to organizational form and financial structure has in addition not only to take issues like those mentioned in footnote 3 into account, but also fiscal and judicial aspects.

Appendix

This appendix addresses three issues. First, comparative statics results are formulated regarding the model of Aghion and Bolton (1992). Second, the size of the hold-up problem is defined. Finally, a formal relationship is established between the incomplete contracts literature and transaction cost economics.

Aghion en Bolton (1992) specify an investor and an entrepreneur. The investor cares only about monetary returns, whereas the entrepreneur is also interested in non-pecuniary benefits. The expected monetary return is γ_j^i and the private benefit of the entrepreneur is l_j^i , where i is the state of nature and j the action chosen. The state of nature is either $i = g(\text{ood})$ with probability q or $i = b(\text{ad})$ with probability $1-q$. The possible choices of action are $j = g(\text{ood})$ or $j = b(\text{ad})$. The first best action j in state i maximizes total revenues $\gamma_j^i + l_j^i$ and is defined to be action $g(b)$ in state $g(b)$. The incompleteness of contracts is reflected in the impossibility of making ex ante contracts contingent on the state of nature i . However, they can be made contingent on a publicly verifiable signal, s , which is imperfectly correlated with i . It is assumed that $\beta^g = \text{Prob}(s=gl=i=g) > .5$ and $\beta^b = \text{Prob}(s=gl=i=b) < .5$. Monetary returns are assumed to be verifiable, which allows for the use of standard incentive schemes. The set-up costs of the projects are k . There are many wealthy investors. The entrepreneur has no wealth, but it is assumed that he has all the bargaining power.

The monetary return $\pi(v)$ of financial instrument v for the investor depends on the values of γ_j^i , l_j^i , β^g and β^b . The case with both monetary returns (γ) and private benefits (l) not comonotonic with total revenues ($\gamma+l$), e.g. $l_b^b < l_g^b$ and $\gamma_g^g < \gamma_b^g$, illustrates the tradeoffs between the different financial instruments best. Aghion and Bolton derive for this situation that

$$\pi(E) = (q\gamma_g^g + (1-q)\gamma_b^b)t_E$$

$$, \text{ where } t_E = \gamma_g^g / \gamma_b^g$$

$$\pi(D) = q(\beta^g\gamma_g^g + (1-\beta^g)\gamma_b^g) + (1-q)(\beta^b\gamma_g^b + (1-\beta^b)\gamma_b^b)$$

$$\pi(P) = \max(\pi_1, \pi_2, \pi_3)$$

$$, \text{ where } \pi_1 = (q\gamma_g^g + (1-q)\gamma_b^b)t_p$$

$$\pi_2 = q\gamma_g^g + (1-q)\gamma_b^b$$

$$\pi_3 = q(\beta^g\gamma_g^g + (1-\beta^g)\gamma_b^g t_p) + (1-q)(\beta^b\gamma_g^b + (1-\beta^b)\gamma_b^b t_p)$$

$$t_p = ((\gamma_b^b + l_b^b) - (\gamma_g^b + l_g^b)) / (\gamma_b^b - \gamma_g^b)$$

The expected return $\pi_1(\pi_2, \pi_3)$ of preferred stock for the investor is obtained with a renegotiation-proof (renegotiation-proof in state b , partial renegotiation-proof in state g) contract. The parameter $t_E(t_p)$ is the share of the monetary returns which the optimal incentive scheme allocates to the investor when equity (preferred stock) is used. Notice that investor control (equity) becomes relatively less attractive than entrepreneurial control (preferred stock) when t_E decreases, i.e. an increasing tension between monetary and total returns may prevent that the entrepreneur, due to his wealth constraint, is able to achieve the implementation of the first best action plan in the ex post renegotiation process. This limits the size of projects (k) under which first-best action plans are feasible. Similarly, entrepreneurial control becomes relatively less attractive than investor control when t_p decreases, i.e. an increasing tension between private benefits and total returns may prevent that the investor adopts viable projects

with high set-up costs. A (partial) renegotiation proof contract under which the entrepreneur implements the first best action plan is too expensive for the investor when k is high, because the entrepreneur has to be given a share of the verifiable returns in order to induce him to choose the most desired action of the investor. Observe that ex-post inefficiencies in the renegotiation process are due to the limited entrepreneurial resources, not to asymmetric information between the parties.

A crude summary of the model is presented in figure 7. The parameter $t_E(t_P)$ is inversely related to the tension between monetary (private) returns of the investor (entrepreneur) and total returns. Equity will implement projects with high k when there is not much tension between monetary and total returns, whereas there is a large tension between private and total returns. Similarly, preferred stock will implement projects with high k when there is not much tension between private and total returns, whereas there is a large tension between monetary and total returns.

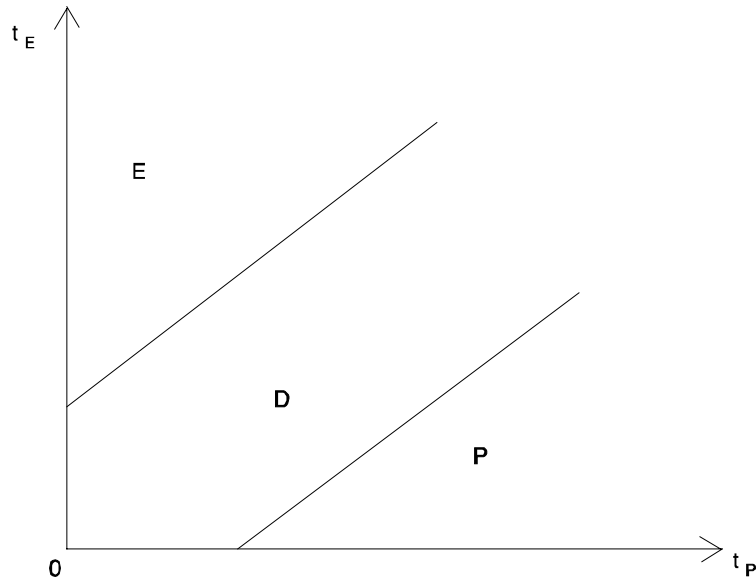


Figure 7: Comparative statics of financial governance structures

The degree of incompleteness of the ex ante contract is measured by $|1-\beta^q| + |0-\beta^b|$, i.e. it is minimal (maximal) when this measure is 0(1). We define the size of the hold-up problem of financial instrument v as

$$H(kv) = \max(0, \min(k, q\gamma_g^a + (1-q)\gamma_b^b) - \pi(v))$$

The term $\min(k, q\gamma_g^a + (1-q)\gamma_b^b)$ represents that only feasible projects are considered. It is agreed in the main text that the effect of the internal generation of funds is captured by a reduction in k , the personal liability effect is reflected in $1-q$ and the relationship of the MC with banks decreases $|1-\beta^q| + |1-\beta^b|$, especially β^b .

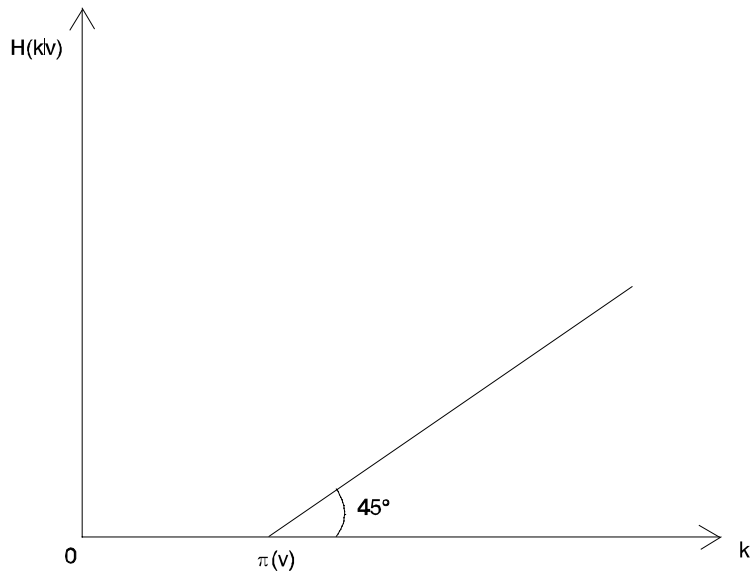


Figure 8: Hold-up problem of financial instrument v

Figure 8 reflects that there is no (hold-up) problem ($H(k/v)=0$) with financial instrument v when investment costs k of the project are lower than the profits of the investor ($\pi(v)$). Similarly, an investor governed by financial instrument v will not participate in projects with set-up costs $k > \pi(v)$. Notice that the profits of the investor depend on v , where v is either E (equity), P (preferred stock) or D (debt). It can be shown that equity is more attractive than preferred stock (i.e. $\pi(E) > \pi(P)$) when the divergence between the monetary benefits of the investor and total benefits is smaller than the divergence between the non-pecuniary benefits of the entrepreneur and total benefits.

Notice that the linear transformation $W(k/v) = w(v) + \gamma(v)H(k/v)$ with $w(P) < w(D) < w(E)$ and $\gamma(P) > \gamma(D) > \gamma(E)$ is able to capture qualitatively the relationship between incomplete contracts and transaction costs economies. Notice that the models of Aghion and Bolton (1992) and Williamson (1988) imply that the firm adopts only one financial instrument in equilibrium. Firms employ debt as well as equity in the incomplete contracting model of Dewatripont and Tirole (1992) because it provides a balance between excess passivity of equity holders in managerial matters and the excessive interference of debtholders.

A stylized representation of the CF specifies it as consisting of two parties, an outside investor and a manager. A MC is characterized by an additional party, i.e. the members. Our focus is on the additional problems which emerge due to the introduction of this party. We restrict ourselves to the relation between the outside investor and the members (and therefore implicitly assume that it can be separated from the incentive problem surrounding the manager.) A CF doesn't have to consider any problem with its members, because it has none. The first best action can always be implemented (, i.e. $H(k/E) = 0$ for all values of k). This is captured by structuring the payoffs in such a way that equity is able to achieve the first best, i.e. assume that monetary benefits are comonotonic with total returns. A MC doesn't have access to (outside) equity, whereas a CF does. If the additional assumption is made that private returns are not-comonotonic with total returns, then a MC will not implement all feasible projects (, i.e. $H(k/P) > 0$ for high values of k).

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